SUPPORTING CHILDREN WITH COMPLEX COMMUNICATION NEEDS TO COMMUNICATE CHOICES DURING AN INPATIENT STAY: EFFECTS OF AN AAC PARTNER TRAINING

Jessica Gormley, M.A., CCC-SLP
Pennsylvania State University

OBJECTIVES

1. Share results of a study that evaluated the impact of a AAC partner training to teach healthcare providers to support child communication of choices during inpatient interactions
2. Discuss, as a group, strategies to conduct rigorous intervention research in health care settings

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- The families and healthcare providers who participated in this research

“Communication is the most common ‘procedure’ in medicine.”

(Levetown & the Committee on Bioethics, 2008, p. e1441)
THE PROBLEM

- A severe communication disability can negatively impact the quality of life, health outcomes, and participation of individuals with complex communication needs in medical encounters (Beukelman, Blackstone, & Yorkston, 2015)
- Adults with complex communication needs experience 3 times more preventable adverse medical events (Bartlett, 2008)
- Reducing communication barriers of individuals with CCN in acute care facilities could prevent over 600,000 adverse events annually (projected savings of $6.8 billion) (Hurtig, Alper, & Berkowitz, 2018)
- Children with complex communication and medical needs often experience frequent and/or extensive hospitalizations (Burns et al., 2010)

CHILDREN WITH COMPLEX COMMUNICATION NEEDS IN THE HOSPITAL:

- Rely on augmentative and alternative communication (AAC) strategies to communicate
- Experience multiple challenges communicating with staff (Shilling et al., 2012)
- Often play passive roles during interactions (Hemsley et al., 2013)
- Have expressed a desire to more actively participate in interactions (Hemsley et al., 2013)

IN INPATIENT ENVIRONMENTS

Children with CCN may:
- Have restricted communication with adults
- Have limited access to toys
- Interact with a large number of unfamiliar partners
- Have limited linguistic input in a mode they can easily produce
- Have existing or newly acquired neurological conditions that make communication and language learning challenging

HOSPITAL PROVIDERS WHO SERVE CHILDREN WITH DISABILITIES REPORT:

- Time constraints as a critical barrier to effective communication (e.g., Hemsley & Balandin, 2014)
- Limited training to effectively communicate with individuals with complex communication needs (e.g., Finke et al., 2008)
- Supporting the child’s communication in hospitals is not part of their roles on the interdisciplinary team (Sharkey et al., 2016)
- Prioritizing other aspects of care (e.g., feeding) above communication (Hemsley et al., 2014)
IMPLICATIONS FOR TRAINING

- Consider efficient and effective methods to train a large number of communication partners, across a variety of settings and locations, for potentially short durations of time.
- Provide consistent opportunities for the child to actively control aspects of the interaction.
- Train health care providers and parents to be responsive to child communication attempts with diverse linguistic input.

WHY TEACH CHOICE-MAKING?

- Promotes child control and active participation in medical encounters (Palazzi et al., 2015).
- Early developing skill exhibited by children in the intentional and early symbolic levels of communication (Siegel & Cress, 2002).
- Can be used:
  - with children who use a variety of AAC techniques (e.g., eye gaze).
  - across a variety of contexts and activities.
- It is quick to learn and easy to implement.

RESEARCH QUESTIONS

(a) What is the effect of the training on the percentage of rehabilitation providers who offer a child with CCN a choice during routine interactions?
(b) What is the effect of the training on rehabilitation providers' accuracy implementing the steps of the choice-making strategy with children with CCN during routine interactions?
(c) What is the perceived value of the training based on rehabilitation providers' self-report?
(d) What is the effect of the training on the children's communication of choices during routine interactions?

JUST-IN-TIME TRAINING FORMAT

(Branzetti et al. 2017; Mangum et al., 2017)

- Brief: 15-minutes in duration
- Portable: Housed on a tablet
- Task-Driven: Focused on procedural learning of a single, well-defined task (i.e., choice-making)
- Multimedia Elements: Video cases, audio narration, and text used to explain and demonstrate content
- User-Driven & Instructor-Driven: Instructor pre-programmed pause points & explanation; User controlled the rate of completion and navigation.
“COMMUNICATING CHOICES” MOBILE TRAINING

ADULT PARTICIPANTS (N = 28)

- Nurse (n = 6)
- Certified Nursing Assistant (n = 4)
- Respiratory Therapist (n = 6)
- Speech-Language Pathologist (n = 3)
- Occupational Therapist (n = 4)
- Physical Therapists (n = 3)
- Recreational Therapists (n = 2)

CHILDREN WITH COMPLEX COMMUNICATION NEEDS (N = 3)

Jacinta
- 17 months old
- Septic shock syndrome resulting in multiple amputations

Gerome
- 16 years old
- Anoxic brain injury, previously typically developing

Adriana
- 16 years old
- Rare chromosomal disorder, in ICU for 1 year prior to admission to rehab facility

“COMMUNICATING CHOICES” CHECKLIST

**OFFER A CHOICE**
- Pick 2 objects
- Ask a question
- Show and name

**WAIT FOR A RESPONSE**
- Watch the child
- Remain silent

**RESPOND TO THE CHILD**

<table>
<thead>
<tr>
<th>If the child...</th>
<th>Say</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picks an item</td>
<td>“You want ___”</td>
<td>Give the item to the child</td>
</tr>
<tr>
<td>Rejects the items</td>
<td>“You don’t want ___”</td>
<td>Present different items</td>
</tr>
<tr>
<td>Does not respond</td>
<td>“I don’t know what you want”</td>
<td>Repeat the same items</td>
</tr>
</tbody>
</table>
STUDY PROCEDURES

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment (n = 14)</td>
<td>2 Child Interactions (Pretest)</td>
<td>Training + Checklist Social Validity Questionnaire</td>
</tr>
<tr>
<td>Control (n = 14)</td>
<td>2 Child Interactions (Pretest)</td>
<td>2 Child Interactions (Posttest)</td>
</tr>
</tbody>
</table>

DEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of rehabilitation providers who offered a choice</td>
<td>The total number of providers in each group that offered at least one choice/(the total number of providers in the group) X 100</td>
</tr>
<tr>
<td>Accuracy of procedure implementation</td>
<td>The total number of procedure steps accurately implemented by the provider during child interaction 1 + child interaction 2</td>
</tr>
<tr>
<td>Percentage of interactions when children communicated a choice</td>
<td>The total number of interactions that a child accepted or rejected a choice in each time point/(total number of interactions in each time point) X 100</td>
</tr>
</tbody>
</table>

DATA CODING

- Prior to coding, two research assistants completed a training of the operational definitions.
- Child-provider interactions were coded using the operational definitions of each dependent variable by a research assistant blind to group assignment and pre-post condition.
- A second research assistant, also blind to group assignment and condition, coded 25% of the child interaction videos to achieve interobserver reliability.

DATA ANALYSIS

- Descriptive statistics were completed to calculate:
  - The percentage of healthcare providers who offered a choice across each group and time point
  - The accuracy of procedure implementation by providers across each group and time point
  - The percentage of interactions when the children (a) selected an item, (b) rejected both items, or (c) did not respond to the provider when offered a choice
- The Kruskal-Wallis test was used to investigate the effects of the training on the accuracy of procedure implementation between groups.
- Eta-squared was calculated to measure the clinical significance of these effects.
RESULTS – HEALTHCARE PROVIDERS WHO OFFERED A CHOICE

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Interactions</th>
<th>Posttest Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment (n = 14)</td>
<td>0% (n = 0)</td>
<td>71% (n = 10)</td>
</tr>
<tr>
<td>Control (n = 14)</td>
<td>14% (n = 2)</td>
<td>7% (n = 1)</td>
</tr>
</tbody>
</table>

ACCURACY OF PROCEDURE IMPLEMENTATION

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Pretest Score</th>
<th>Median Score</th>
<th>U</th>
<th>P</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>0 (0)</td>
<td>0</td>
<td>84.00</td>
<td>0.15</td>
<td>0.07</td>
</tr>
<tr>
<td>Control</td>
<td>2.0 (5.6)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gain Scores (Posttest – Pretest)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Gain Score (SD)</th>
<th>H(1)</th>
<th>P</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>+11.6 (8.9)</td>
<td>12.597</td>
<td>0.001**</td>
<td>0.44</td>
</tr>
<tr>
<td>Control</td>
<td>-1.4 (6.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**CHILD PARTICIPATION DURING INTERACTIONS (TREATMENT GROUP)**

**Pretest:**
- Providers did not offer children a choice in any pretest interaction
- Children communicated a choice during 0% (n = 0) of interactions

**Posttest:**
- Providers offered children a choice in 16 posttest interactions
- Children communicated a choice during 94% (n = 15) of interactions when a choice was offered

**LIMITATIONS**
- Although improvements were observed in the treatment group, a small number of providers still did not offer a choice following the training → may need additional training and/or a different training mode
- Due to time constraints on the unit, maintenance of the target skill was unable to be measured
- The training only addressed one interaction skill

**DISCUSSION**
- Following training completion (total of 15 minutes):
  - more healthcare providers offered a choice to a child with CCN after completing the training
  - inpatient providers completed the “Communicating Choices” procedure with increased accuracy
  - children with complex communication needs consistently communicated their choices, when given the opportunity to do so
- The training may be an effective intervention approach to support children with CCN to communicate their preferences in the inpatient setting

"You can use it anytime with kids"  
"Choices are always good for kids to make them think they are in control"

"It gives clinicians a standardized communication method to attempt with a variety of patients to optimize their performance and comfort with what is happening during the hospital stay"

"It is sometimes difficult to break down choices into an object for representation"
UNDERSTANDING AND IMPROVING AAC SERVICES IN INPATIENT SETTINGS

Project 1: Online Focus Groups of Inpatient Rehab SLPs

Project 2: Descriptive Studies of Child-(Parent)-Provider Interactions

Project 3: AAC Communication Partner Training for Pediatric Rehab Staff

Future Projects: AAC Communication Partner Training for In-service and Pre-service Healthcare Staff

DISCUSSION TOPIC

- How can we design research studies that rigorously evaluate the impact of AAC trainings within healthcare settings, given its unpredictable and dynamic nature inpatient settings?
- Recruitment and retention of participants
- Challenges maintaining experimental control (e.g., unexpected discharges, admissions, staff work assignments)
- Real-world evaluation of short-term and long-term effects of the treatment

REFERENCES

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